

### Important Short Questions

1. If  $P = \begin{bmatrix} 7 & 3 \\ 0 & 2 \end{bmatrix}$  so find  $P^{-1}$
2. scalar and diagonal matrix
3.  $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$  Verify that  $A + A^t$  is symmetric matrix
4. symmetric and skew symmetric
5. solve  $\begin{bmatrix} 2 & 3 & 1 \\ 1 & 0 & 2 \end{bmatrix} - \begin{bmatrix} 2 & 2 \\ 2 \end{bmatrix}$
6. Find product  $\begin{bmatrix} 1 & 2 \\ -3 & 0 \\ 6 & -1 \end{bmatrix} \begin{bmatrix} 4 & 5 \\ 0 & -4 \end{bmatrix}$
7. if  $A = \begin{bmatrix} 2 & 3 \\ 1 & 0 \end{bmatrix}$ ,  $B = \begin{bmatrix} 5 & -4 \\ -2 & -1 \end{bmatrix}$   
find  $\frac{2}{3}(2A - 3B)$
8.  $\begin{bmatrix} a+3 & 4 \\ 6 & b-1 \end{bmatrix} = \begin{bmatrix} -3 & 4 \\ 6 & 2 \end{bmatrix}$   
then find a and b
9. Additive inverse  $A = \begin{bmatrix} \sqrt{3} & 1 \\ -1 & \sqrt{2} \end{bmatrix}$
10. product  $\begin{bmatrix} 1 & 2 \\ -4 \end{bmatrix}$
11. Verify that  $(A^t)^t = A$  if  $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$
12. adjoint of matrix? Give example
13.  $P = \begin{bmatrix} 7 & 3 \\ 0 & 2 \end{bmatrix}$  so find  $P^{-1}$
14. value of X,  
if  $\begin{bmatrix} 2 & 1 \\ 3 & -3 \end{bmatrix} + X = \begin{bmatrix} 4 & -2 \\ -1 & -2 \end{bmatrix}$
15. Row and Column matrix
16. Square and rectangular matrix
17. radical and radicand
18.  $(x^3)^2 + x^3^2$
19. Simplify  $\frac{x^{-2}x^{-3}y^7}{x^{-3}y^4}$
20. Simplify  $\frac{4(3)^n}{3^{n+1}-3^n}$ ,  $\sqrt[3]{16x^4y^5}$
21. Complex numbers
22. Simplify  $\sqrt[4]{81y^{-12}x^{-8}}$
23. Express  $\frac{1}{1+2i}$  in the standard form  $a + bi$
24. value of x and y if  $x + iy + 1 = 4 - 3i$

25. Simplify  $\left(\frac{32x^{-6}y^{-4}z}{625x^4y^2z^{-4}}\right)^{2/5}$
26. Simplify  $\sqrt{25x^{10n}y^{8m}}$
27. Express in the form of rational numbers  $0.\overline{23}$
28. Simplify  $\left(\frac{x^3y^4z^5}{x^{-2}y^{-1}z^{-5}}\right)^{\frac{1}{5}}$
29. Express in scientific notation 0.00643
30. Evaluate  $\log 512$  to the base  $2\sqrt{2}$ ?
31.  $\log_3 81 = L$  find L
32.  $\log_{64} 8 = \frac{x}{2}$
33. characteristic and mantissa
34.  $\log \frac{(22)^{\frac{1}{3}}}{5^3}$
35. write into single logarithm  $2 \log x - 3 \log y$
36.  $\log_2 3 \times \log_3 8$
37. value of x if  $\log x = 1.6238$
38.  $\log_{625} 5 = \frac{1}{4}x$
39. Evaluate  $i^{27}$
40.  $\frac{lx+mx-ly-my}{3x^2-3y^2}$
41. rational expression
42. Solve  $\frac{120x^2y^3z^5}{30x^3yz^2}$
43. if  $x - \frac{1}{x} = 4$ , then find  $x^3 - \frac{1}{x^3}$ ?
44. Factorize  $125x^3 - 1331y^3$
45. Simplify  $\frac{4}{5}\sqrt[3]{125}$
46. If  $x = 4 - \sqrt{17}$ , Find  $\frac{1}{x}$ ?
47. Find x and y such that  $\frac{4+3\sqrt{5}}{4-3\sqrt{5}} = x + y\sqrt{5}$
48. Solve form  $\frac{8a(x+1)}{2(x^2-1)}$
49. Factorize  $25x^2 + 16 + 40x$
50. Factorize  $\frac{a^2}{b^2} - 2 + \frac{b^2}{a^2}$
51. Factorize  $81x^4 + 36x^2y^2 + 16y^4$
52. Factorize  $8x^3 - \frac{1}{27y^3}$ ?
53. Factorize  $1 - 12pq + 36p^2q^2$ ?
54. Factorize  $4x^2 - (2y - z)^2$
55. Factorize  $125x^3 - 216y^3$ ?
56. Factorize  $144a^2 + 24a + 1$
57. Factorize  $pqr + qr^2 - pr^2 - r^3$
58. Factorize  $64x^3 + 343y^3$ ?
59. Simplify  $\frac{3}{4}\sqrt[3]{128}$
60. Simplify  $A - \frac{1}{A}$ ,  
Where  $A = \frac{a+1}{a-1}$ ?
61. square root of  $\frac{1}{16}x^2 - \frac{1}{12}xy + \frac{1}{36}y^2$
62. L.C.M  $4(x^4 - 1)$ ,  $6(x^3 - x^2 - x + 1)$
63. H.C.F and LCM of  $102xy^2z$ ,  $85x^2yz$  and  $187xyz^2$
64. L.C.M of  $39x^7y^3z$  and  $91x^5y^6z^7$
65. collinear or non-collinear points
66. Graph of  $2y - x + 2 = 0$
67. coordinate axes and origion
68. mid-point of  $(2, 5)$ ,  $(-1, 1)$  Practice on other parts
69. distance b/w  $A(3, -11)$ ,  $B(3, -4)$
70. distance b/w  $A(-4, \sqrt{2})$ ,  $B(-4, -3)$   
Practice on other parts
71. Find k, given that the point  $(2, k)$  is equidistance from  $(3, 7)$  and  $(9, 1)$ ?
72. graph of  $y = 2.5x$
73. graph for relation  $F = \frac{9}{5}C + 32$
74. S.A.S Postulate
75. linear inequality in one variable
76. Solve inequality  $\frac{1}{3}x + 5 \leq 1$
77. Solve for x,  $|8x - 3| - 2 = |4x + 5|$
78. Solve  $\frac{3x}{2} - \frac{x-2}{3} = \frac{25}{6}$
79. Solve  $\frac{3x-1}{3} - \frac{2x}{x-1} = x$
80. Solve  $\sqrt[3]{2-t} = \sqrt[3]{2t-28}$
81. Solve  $\sqrt{\frac{x+1}{2x+5}} = 2$
82. Solve  $\left|\frac{3-5x}{4}\right| - \frac{1}{3} = \frac{2}{3}$
83. Find the length of the diameter of the circle having centre at  $C(-3, 6)$  and passing through  $P(1, 3)$ .

84. Solve  $\left(\frac{4a^3b^0}{9a^{-5}}\right)^{-2}$
85.  $\log_x 64 = 2$
86.  $10^p = 40$  find p?
87.  $\log x = 0.0044$
88.  $\frac{3x^2\sqrt{y}+6}{5(x+y)}$  if  $x = -4$ ,  $y = 9$
89. Factorize  $x^3 - y^3 - x + y$
90. Simplify  $\frac{(x+y)^2-4xy}{(x-y)^2}$
91. Simplify  $\frac{9x^2-(x^2-4)^2}{4+3x-x^2}$
92. Simplify  $\frac{\sqrt[6]{12}}{\sqrt[3]{3}\sqrt[2]{2}}$
93. Simplify  $\frac{\sqrt{21}\sqrt{9}}{\sqrt{63}}$
94. Solve  $3x^2 - 75y^2$ ,  $3x - 243x^3$
95. Factorize  $x^2 + 5x - 36$
96. Factorize  $(1 - 125x^3)$
97. Find square root  $4x^2 - 12x + 9$
98. Find square root  $4x^2 - 12xy + 9y^2$
99. Solve  $\sqrt{2x-3} - 7 = 0$
100. Solve  $|3x - 5| = 4$ ,  $|2x + 5| = 11$
101. if  $y = mx + c$  then find m, c (All Parts)
102. Review Ex 10 (Q4, Q5)
103. Review Ex 11 (Q3, Q4, Q5)
104. Review Ex 12 (Q4, Q5, Q6)
105. Review Ex 13 (Q4, Q5, Q6)
106. Review Ex 14.1 (Q1), Ex 14 (Q3, Q4, Q5, Q6)
107. Review Ex 15.1 (Q6, Q7, Q8) Ex 15 (Q1)
108. Review Ex 16 (Q2)

### Important Definitions

Rectangular and scalar matrix, Diagonal matrix, adjoint and order of matrix, rational irrational numbers, radical and radicant, complex number, natural logarithm, Characteristics and mantissa, Surd, inequality, SAS postulate, equilateral, Isosceles, right angle triangle, Collinear non-collinear points, complementary and supplementary

angles, Bisector of an angle, similar and congruent triangle, congruent lines, In center, Circumcenter, orthocenter, Centroid, ratio and proportion, parallelogram, line segment, radical equation,

### Important Long Questions

#### CH # 1

- Ex.1.1 = Q3 Ex.1.3 = Q7  
Ex.1.4 = Q5,6 Ex.1.5 = Q4,6  
Ex.1.6 = Q1 (All Parts + Example)  
Review = Q7

#### CH # 2

- Ex.2.4 = Complete Ex.2.5 = Q6, Q7  
Review = Q4, 5, 6, 7

#### CH # 3

- Ex.3.4 = Q1 (All Parts + Examples)  
Review = Q6 Laws of Logarithm

#### CH # 4

- Ex.4.1 = Q3 (vii, viii + Examples) Q4(v)  
Ex.4.2 = Q1 (ii), Q3, 4, 5, 7, 9  
Ex.4.3 = Example 1 Ex.4.4 = Example (3, 4), Q4, 5, 6  
Review = Q5, 6, 7, 8

#### CH # 5

- Ex.5.2 = Q4 Complete (Type IV + Examples 1, 2, 3)  
Ex.5.3 = Q2, 4, 5, 7, 8 Ex.5.4 = Q3, 4, 5, 7

#### CH # 6

- Ex.6.1 = Q1, Q2(iv, v) Q7, 8, 9  
Ex.6.2 = Example 1, Q5, Q11  
Ex.6.3 = Q1(v, vi, vii)  
Review = Q6 (i, ii), Q7

#### CH # 7

- Ex.7.1 = Q1(iv, v), Q2(vi, viii) Example 3  
Ex.7.2 = Q2(vii)  
Ex.7.3 = Q1(iv, v)

#### Theorem 12

- 1, 2, 4 (100% chance)  
3, 5 (70% chance)

#### CH # 17

- Ex.17.1 = Q1(iii, iv, vi), Q2(ii)  
Ex.17.2 = Q1(ii, iii), Q2(i, ii) Q3(iii) Q4(ii)

### To Get 75 Marks

Student must prepared

- 1<sup>st</sup> Four chapter long question
- Short question of all chapters
- Theorem of 12 chapter.
- MCQ from exercise and from theory given before the exercise.

I will assure you every student can take full marks by preparing only these questions.



*Best of Luck!*